

Application No. 10/567,241
Amendment under 37 CFR 1.116
Reply to Office Action dated November 19, 2010
April 19, 2011

AMENDMENTS TO THE CLAIMS

Please substitute the following claims for the pending claims with the same numbers respectively:

Claim 1 (Currently amended): A semiconductor memory card which is used in connecting to an access device, comprising:

a host interface which transmits a control signal and data to the access device and receives a signal from the access device;

a nonvolatile memory in which a plurality of continuous sectors are grouped into an erase block as a minimum unit for data erasing and which includes an address management information area and user data area;

a memory controller which controls erasing, writing and reading of data for said nonvolatile memory;

a control part which controls said semiconductor memory card on the basis of the control signal acquired via said interface; wherein said semiconductor memory card further comprises;

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a memory for a card information storage including a card information storage part which stores at least

first information on physical characteristics in said semiconductor memory card,

second information on an access condition at the time when said access device accesses said semiconductor memory card, and

third information on an access rate of said semiconductor memory card when said access device performs access on said access condition;

wherein said second information includes a minimum sequential area size for sequential access.

Claim 2 (Previously presented): The semiconductor memory card according to claim 1, wherein said card information storage part stores

fourth information on an abnormal process of said semiconductor memory card.

Claim 3 (Previously presented): The semiconductor memory card according to claim 1, wherein said third information in said card information storage part includes

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a flag representing rate performance of said semiconductor memory card as said information on said access rate.

Claim 4 (Cancelled):

Claim 5 (Previously presented): The semiconductor memory card according to claim 1, wherein

said control part, in response to a request from said access device, reads information on said access condition for accessing said semiconductor memory card, and information on said access rate when accessing to said semiconductor memory card on said access condition from said card information storage part, and transmits the information to said access device.

Claim 6 (Previously presented): The semiconductor memory card according to claim 1, wherein

said control part, in response to information on said access condition designated by said access device, reads information on said access rate when accessing the semiconductor memory card on said access condition from said card information storage part, and transmits the information to said access device.

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Claim 7 (Previously presented): The semiconductor memory card according to claim 1, wherein

said control part, in response to information on said access rate designated by said access device, reads information on said access condition to said semiconductor memory card required to meet said access rate from said card information storage part, and transmits the information to said access device.

Claim 8 (Previously presented): The semiconductor memory card according to claim 1, wherein

said control part, when reading information on said access condition designated by said access device and information on said access rate from said card information storage part and accessing said semiconductor memory card on said access condition, determines whether or not the access rate is met and transmits a determination result to said access device.

Claim 9 (Cancelled):

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Claim 10 (Currently amended): The semiconductor memory card according to claim 1, wherein

said card information storage part has information on said access rate of said semiconductor memory card for a plurality of levels of power consumption of said semiconductor memory card as said third information, and

said control part, in response to a request from said access device and designation of the power consumption level, reads information on said access condition for accessing said semiconductor memory card and information on said access rate when accessing said semiconductor memory card on said access condition from said card information storage part, and transmits the information to said access device.

Claim 11 (Currently amended): The semiconductor memory card according to claim 1, wherein

said card information storage part has information on said access rate of said semiconductor memory card for a plurality of levels of power consumption of said semiconductor memory card as said third information, and

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said control part, in response to information on said access condition designated by said access device and designation of the power consumption level, reads information on said access rate when accessing said semiconductor memory card on said access condition and designated electrical power consumption level from said card information storage part, and transmits the information to said access device.

Claim 12 (Currently amended): The semiconductor memory card according to claim 1, wherein

said card information storage part has information on said access rate of said semiconductor memory card for a plurality of levels of power consumption of said semiconductor memory card as said third information, and

said control part, in response to information on said access rate designated by said access device and designation of the power consumption level, reads information on said access condition to said semiconductor memory card required to meet said access rate from said card information storage part, and transmits the information to said access device.

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Claim 13 (Currently amended): The semiconductor memory card according to claim 1, wherein

said card information storage part has information on said access rate of said semiconductor memory card for a plurality of levels of power consumption of said semiconductor memory card as said third information, and

said control part reads information on said access condition designated by said access device and information on designation of the power consumption level and said access rate from said card information storage part, determines whether or not said access rate is met when accessing said semiconductor memory card on said access condition and designated electrical power level, and transmits a determination result to said access device.

Claim 14 (Previously presented): The semiconductor memory card according to claim 1, wherein

said card information storage part has an access performance basic information list which holds various process times and process unit sizes in said semiconductor memory card according to an access method, and

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in response to a request from said access device, said control part transmits said access performance basic information list to said access device.

Claim 15 (Currently amended): The semiconductor memory card according to claim 1, wherein

said card information storage part holds ~~a process unit size of said semiconductor memory card, access method and access rate in the case where an access condition containing process contents are changed~~ an access rate in the case where an access condition containing a process unit size of said semiconductor memory card, access method and process contents is changed, and

in response to a request of said access device, said control part transmits information on said access rate to said access device.

Claim 16 (Previously presented): An access device for accessing a semiconductor memory card in which a plurality of continuous sectors are grouped into a block as a minimum unit for data erasing and stored data is managed according to a file system comprising:

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a card information acquisition part for acquiring information on an access condition as a condition at the time when said access device accesses said semiconductor memory card and an access performance which said semiconductor memory card realizes when said access device performs access on said access condition from said semiconductor memory card;

a card use condition storage part for storing information on an access condition which can be used when said access device accesses said semiconductor memory card and information on an access rate desirable for said semiconductor memory card;

an access condition determination part for determining said access condition on the basis of the information acquired by said card information acquisition part, information on access performance of said semiconductor memory card and information stored in said card use condition storage part;

a file system control part for acquiring said access condition determined by said access condition determination part and performing file access suitable for said access condition; and

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an access control part for accessing said semiconductor memory card in response to an access request from said file system control part.

Claim 17 (Previously presented): The access device according to claim 16, wherein

said access condition determination part divides an area of said semiconductor memory card in file system access units on the basis of the information on access performance acquired from said semiconductor memory card.

Claim 18 (Previously presented): The access device according to claim 17, wherein

said file system control part, when recording file data on said semiconductor memory card, determines a continuous free area having a length of multiples of said file system access unit on the basis of management information of a file system constructed on said semiconductor memory card, and records the file data in said determined continuous free area.

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Claim 19 (Previously presented): The access device according to claim 17, wherein

said file system control part, when recording new file management information on said semiconductor memory card, determines whether or not another file management information is recorded in the area of said file system access unit on the basis of management information of the file system constructed on said semiconductor memory card and a free area for writing new file management information therein exists, and when the free area exists, determines said free area as a writing position of file management information, and records the file management information in said determined free area.

Claim 20 (Previously presented): The access device according to claim 17, wherein

said file system control part, when the areas of a plurality of said file system access units are partially used, moves data in the used areas of partially used file system access units to an unused area of another file system access unit on the basis of management information of a file system constructed on said semiconductor memory card.

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Claim 21 (Previously presented): The access device according to claim 17, wherein

said file system control part calculates the number of areas in which the whole of said file system access unit is the free area on the basis of management information of the file system constructed on said semiconductor memory card.

Claim 22 (Currently amended): An access method for accessing a semiconductor memory card in which a plurality of continuous sectors are grouped into a block as a minimum unit for data erasing and stored data is managed according to the file system comprising:

a card use condition storage step for storing information on an access condition which can be used when accessing said semiconductor memory card and information on an access rate desirable for said semiconductor memory card;

a card information acquisition step for acquiring information on an access condition as a condition at the time when said access device accesses said semiconductor memory card and access performance which said semiconductor memory card

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realizes when said access device performs access on said access condition from said semiconductor memory card;

an access condition determination step for determining said access condition on the basis of the information acquired in said card information acquisition step and information stored in said card use condition storage step; and

a file system control step for acquiring said access condition determined in said access condition determination step and accessing a file in said semiconductor memory card so as to meet said access condition;

wherein said access condition includes a minimum sequential area size for sequential access.

Claim 23 (Previously presented): The access method according to claim 22, wherein said access condition determination step determines a file system access unit as a size used when accessing said semiconductor memory card according to said access condition.

Claim 24 (Previously presented): The access method according to claim 23, wherein

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when recording file data on said semiconductor memory card, said file system control step determines a continuous free area having a length of multiples of said file system access unit on the basis of management information of the file system constructed on said semiconductor memory card, and

the file data is recorded in said determined continuous free area.

Claim 25 (Previously presented): The access method according to claim 23, wherein

when recording new file management information on said semiconductor memory card, said file system control step determines whether or not another file management information is recorded in the area of said file system access unit on the basis of management information of the file system constructed on said semiconductor memory card and a free area for writing new file management information therein exists, and

when the free area exists, said space area is determined as a writing position of file management information and records the file management information in said determined free area.

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Claim 26 (Previously presented): The access method according to claim 23, wherein when the areas of a plurality of said file system access units are partially used, said file system control step moves data in the used areas of partially used file system access units to an unused area of another file system access unit on the basis of management information of the file system constructed on said semiconductor memory card.

Claim 27 (Original): The access method according to claim 23, wherein said file system control step calculates the size of an area in which the whole of said access unit is a free area on the basis of management information of the file system constructed on said semiconductor memory card, and

the calculated value is informed as a free area length of said semiconductor memory card to an application program.

Claim 28 (Cancelled):